

SEPTEMBER
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Amateur Radio

JOURNAL OF
THE WIRELESS
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WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK3WI: Sundays, 1100 hours EST, 7145 Kc. and 2000 hours EST 90 and 144 Mc. No frequency checks available from VK3WI. Intrastate working frequency, 7135 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3575 and 7145 Kc., 51.016 and 144.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

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VK6WI: Sundays, 0930 hours WAST, on 7145 Kc. No frequency checks available.

VK1WI: Sundays, at 1000 hours EST, on 7145 Kc. and 144.5 Mc. No frequency checks are available.

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EDITORIAL



LET'S REJOICE WITH OUR EDITOR

As the heading indicates, our Editor has cause for rejoicing—"restored health." We, who have always enjoyed good health, do not realise the full value of this gift of nature.

Behind the scenes the work involved in the production of a magazine on a voluntary basis makes great demands upon the otherwise leisure hours of all the people concerned, particularly the Editor.

"Amateur Radio" has always been produced under such circumstances and for some years, in spite of physical disability and suffering, Tom Hogan, VK3HX, has carried on doing a noble job.

It is with sincere pleasure we are able to announce that, thanks to a miracle of medical science, Tom will soon be able to walk upright and enjoy health such as he has not done for years.

We hope that Tom will be able to continue his work with the magazine for a long time yet and feel sure that every member will want to join with us in rejoicing with Tom in his new found health and in thanking him once more for his untiring efforts in editing this, "our" magazine.

FEDERAL EXECUTIVE.

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THE V.F.O. AT VK3WI

BY J. C. DUNCAN,* VK3VZ

A few years ago the writer was given the job of building the v.f.o. for VK3WI, and since it has been installed, quite a few requests have been received for details of the unit.

The stability of the v.f.o. has been well tested, it being used for the Accurate Frequency Transmissions since its installation. Drift during one minute key down periods has been measured by the Frequency Measuring Centre, and averages about 5 cycles, which is quite adequate for Amateur purposes.

In the interests of economy it was decided to utilise one of the Command Transmitters, and this disposes unit is compact enough to stand on the operating table without taking a great deal of room.

REQUIREMENTS

The general electrical requirements were:—

1. Output on the 3.5 Mc. band with sufficient output to drive an 807 through a co-ax cable.
2. Stability, such that tuning of following circuits in the transmitter would not be reflected back and cause detuning of the oscillator frequency—in other words, good isolation. This latter point incidentally being a very common fault in v.f.o.'s.

3. Provision for either v.f.o. or crystal controlled output, for spot frequency operation.

4. Netting switch, to enable either the v.f.o. or crystal notes to be picked up on the receiver dial. Having the crystal note available is very handy at VK3WI when setting the receiver on the Net frequency after the broadcast.

5. The best stability and freedom from drift we could get.

6. Good bandwidth on the 7 and 14 Mc. bands, and also full coverage on the 3.5 and 28 Mc. bands, with direct calibration on the dial for all bands.

7. A means of checking the accuracy of the dial calibrations at any time.

The final unit as evolved covered all these points quite satisfactorily and has given trouble-free service since its installation.

To see how the Command Transmitter was altered it is necessary to study the circuit diagram of the altered unit **Fig. 1**, and a circuit of the original transmitter, **Fig. 2**.

To help in the description we will deal with our specification in the order shown.

OUTPUT

(1) As only sufficient r.f. was required to drive a single 807, it was obvious that two 1625s would not be

required, therefore one of the parallel output tubes was removed, this provided us with a spare.

With the removal of one tube, it was found that the neutralising condenser was no longer necessary, so this was removed. The socket was broken out and an amphenol socket soldered in its place, to provide a place for the isolator.

As output was required on 3.5 Mc., the Command Transmitter BC457 was chosen (4–5.3 Mc.). This transmitter does not cover the 3.5 Mc. band as designed, but with suitable parallel capacities this was achieved. The other reason was one of bandwidth, which will be discussed later.

ISOLATION

(2) Preventing the tuning of following circuits from affecting the tuning of the oscillator proved to be a problem, and was only overcome by removing the original 1626 triode oscillator, substituting a 12SK7, electron coupled oscillator, and inserting another 12SK7 as an isolator. With loose coupling to the co-ax line feeding the transmitter, the problem was solved.

V.F.O. OR CRYSTAL

(3) Provision for either v.f.o. or crystal operation was not difficult as the hardest part here was the physical one of finding a place to put the extra tube required, and also the crystal sockets. A 6C4 was used, with a 40

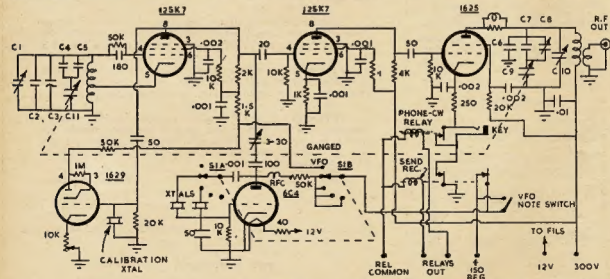


Fig. 1.

- C1, C10—Main trimmers (existing).
C2—100 pF. N.P.O. (Ducon) ceramicon or silver mica.
C3—Existing negative coefficient.
C4—150 pF. silver mica or N.P.O. ceramicon (Ducon).

- C5—20 pF. N750 ceramicon (Ducon) 70 pF. mica (use high voltage type if 1625 is modulated).
C7—150 pF. N.P.O. ceramicon or silver mica.
C8—3/30 pF. air trimmer (Philips).
C9, C11—Main ganged tuning.

Note.—Slight change in value of C5 may be necessary to enable oscillator to

hit 3.5 Mc. in the range of the inductance slug. Alternatively, a 3/30 pF. air trimmer can be used here.

For maximum r.f. output: (1) Adjust C10 at 3.8 Mc.; (2) Adjust 1625 inductance slug at 3.5 Mc.; (3) Adjust C8 at 3.5 Mc. Repeat above sequence of adjustments several times.

ohm resistor connected in series with the filament to allow 12 volt operation. The circuit is a Pierce, with the series plate resistor kept as large as possible consistent with reliable operation. This reduces crystal current and cuts down drift. Also, the output from the crystal oscillator is greater than the variable oscillator, and the 3-30 pF. variable trimmer is used to set the output from the unit to the same level. This avoids complications and retuning in the transmitter when switching from crystal to v.f.o.

The five position switch, S1a and S1b, on the front panel gives four positions for crystal spot frequencies and brings in the v.f.o. on the fifth position.

A 522 crystal socket panel mounted on pillars took care of the crystal socket position, and was salvaged from a 522 disposals unit.

A shield was mounted behind the crystal sockets to stop a slight feedback between the crystal holders and the output coil of the 1625, which are adjacent, and to prevent shocks when changing crystals.

It will be noted that when the unit is on crystal, the main tuning condenser C9 in the plate circuit of the 1625 output stage is still in circuit, and this stage is operating as a buffer, therefore it is necessary to set the tuning dial to the approximate frequency of the crystal in use for best output.

In practice it was found that if the dial was set within about 50 Kc. of the correct frequency it was quite adequate.

The B plus supply for the oscillators comes from a VR150/30, being fed via one pair of contacts on the send-receive relay. Paralleled across the contacts is the Netting Switch (4).

To obtain space for the crystals, oscillator, and switch, the output loading coil was removed, a new aluminium front panel fitted over the old one, and a miniature chassis made up for the 6C5.

STABILITY

(5) Stability and freedom from drift. In the original circuit one side of the filament to the oscillator was taken back through the cathode tap, and the other side of the filament through a coil interwound at the bottom end of the grid coil. It was found that a roughness in the note was due to this connection, and in spite of a change in the connections to the coil it still persisted, therefore the conventional circuit was reverted to.

With the change in the drive to the 1625, coil "C" was no longer necessary, and was removed from the inside of the variable oscillator coil. If it is considered too much trouble to remove it, it could be left and a short placed across the terminals to avoid any chance of resonance.

Temperature compensation of the oscillator proved to be no trouble as the existing negative coefficient condenser, C3 in Fig. 1, located in the oscillator coil compartment, had the correct value as later tests showed.

If you are not so lucky, temperature compensation is not a difficult job to accomplish, the main requirement being patience.

With the oscillator set so that we have maximum opening of the magic eye tube, which will be described later, and a crystal plugged into the check

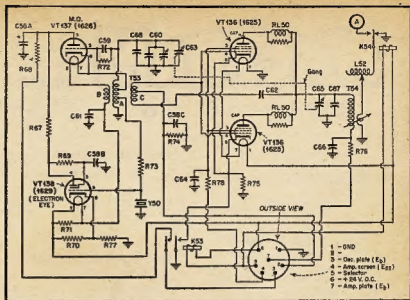


Fig. 2.—Circuit of the unmodified Command Unit. The following parts are identified:

- C58A, C58B, C58C—0.05 uF.
- C59—0.00018 uF.
- C60—Master oscillator padding.
- C61—0.006 uF.
- C62—Fixed neutralising.
- C63—Master oscillator tuning.
- C64—0.002 uF.
- C65—Power amplifier tuning.
- C66—0.01 uF.
- C67—Power amplifier padding.
- C68—3 pF.
- C69—50 pF.
- K53—Transmitter selector relay.
- K54—Transmitter output relay.
- L52—Antenna loading coil.
- R67, R72, R75—51,000 ohms.
- R68, R76—20 ohms.
- R69—1 megohm.
- R70—1,000 ohms.
- R71—126 ohms.
- R73, R74—15,000 ohms.
- R77—390 ohms.
- R78—51 ohms.
- R79—Parasitic suppressors.
- T53—Oscillator coils.
- T54—Amplifier coils.
- Y50—Crystal unit.
- 7-prong female plug, outside view.

circuit, which is in the approximate centre of the band, leave the oscillator running for about an hour. If the eye has closed, carefully retune for maximum eye opening, noting whether the capacity of the tuning condenser went further in, or out of mesh. If a decrease in capacity is noted, the usual case, a greater value of negative coefficient is required in the circuit; whilst if the capacity of the oscillator condenser has to be increased, the circuit is over compensated.

The condenser to use is a Ducon ceramic condenser, marked N750, which indicates a negative coefficient, and a decrease in capacity with rising temperatures. They also have a green dot on one end. The zero coefficient condensers in the same brand are marked with a black dot and also N.P.O., so use the right type.

A few hours spent in temperature compensating will make a vast difference to any oscillator, but one final word of warning. As the condensers are sensitive to temperature changes, don't try and make checks just after they have been soldered into the circuit, heat transferred through the pigtail leads will upset the apple cart.

Finally on the subject of stability we come to voltage stability. As the writer pointed out in his original article on a v.f.o. in August, 1947, "Amateur Radio," it is possible by suitably positioning the cathode tap to make the electron coupled

oscillator immune from voltage changes of up to 100 volts change, in the range of 100 to 200 volts. Briefly, the method is as follows:—

Insert a resistor of about 15,000-20,000 ohms in series with the B supply to the oscillator, feeding both screen and plate, and wire a switch across it. Close the switch, shorting the resistor. Now tune in the note on the receiver and zero beat with the b.f.o. Open the switch and then carefully retune the receiver to zero beat, noting whether the v.f.o. had gone higher or lower in frequency, with the drop in plate and screen voltage. If the oscillator has decreased in frequency, the cathode tap is too low on the coil; and conversely, if the frequency increased, the cathode tap is too high. This test should be made of course with the VR150 regulator removed. In the case of the Command Unit the tap was found to be about optimum so was not altered.

BANDSPREAD

(6) The requirements of good bandspread on 3.5 and 28 Mc., and also on 7-7.15 and 14-14.350 Mc, was quite a tough one, because with a fundamental of 3.5 Mc, the portion of the scale required for 7-7.15 Mc. was only 3.5 to 3.575 Mc., or putting it another way, 75 Kc. in a total scale length of 300 Kc., whilst the position for 14 Mc. wasn't much better. We had one advantage,

(Continued on Page 9)

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Bendix: Input 24v. 1.3 amp., output 300v. 0.260 amp., 150v. 0.010 amp., 145v. 0.050 amp. £2/6

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Suitable for loads up to 100 watts. Radio interference suppressed. Suitable for use in conjunction with Radios, Portable Amplifiers, or Tape Recorders. In strong metal case.

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* Don 3 Telephone Wire, single insulated, for use with Army Field Telephones. Mile Reel £6/10/-

* Low Tension Aircraft Cable, approx. 60 amp. 100 yd. reel £3/10/-

* Seven core Wire, rubber insulated, 100 yard reel £3/10/-

* Belden single core, braided and shielded, 15 strands of approx. 32 gauge. Ideal for Microphone lead. 250 feet coil £5/-

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TRANSMITTER-RECEIVER

Type RT-34/APS-13

Frequency Modulated, approx. 450 megacycles. Valve line-up nine 6AG5, two 2D21, five 6J6, one VR105. Also contains Dynamotor, input 27v. 1.5 amp., output 285v. 60 Ma. £17/10/-

RECEIVERS

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HAND GENERATORS

Gibson Hand crank Generators. Output: high voltage 250v. 100 Ma. low voltage 6-8v. 2 amp. Ideal for conversion power supply for portable Transmitter £4/10/-

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TRANSMITTERS

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H.F. TRANSMITTERS

Type G09

V.F.O. control. Has two 807 valves, one 801 and final stage 803. Frequency 3-18.1 Mc. on H.F., L.F. 300-600 Kc. All switches and condensers, coils and valve sockets are mounted in porcelain. All controls can be locked. Two R.F. output meters 5 amp. two 0-100 Ma. meters, one 0-300 Ma. meter, one 15 volt meter, and one 0.15 Ma. meter. Power supply has one 523 and two 1616 valves. Unit Relay control £25

★ VALVES ★

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AMATEUR TELEVISION

PART THREE—SYNCHRONISING SIGNAL GENERATOR

BY E. CORNELIUS,* VK6EC

The synchronising signal generator is used to time accurately the firing instants of the time bases of both the Flying Spot Scanner and Receiver. It also provides signals for blanking the retrace of the spot in the receiver. Four signals are taken from it at low impedance, by co-axial cables. Two go to the Flying Spot Scanner, and two to the Video Mixer.

The Flying Spot Scanner requires:—

1. A line frequency driving pulse (positive going) at 5,250 p.p.s.
2. A frame frequency driving pulse (positive going) at 25 p.p.s.

The Video Mixer requires:—

1. A composite sync. pulse train (negative going) made up of both sync. pulses.
2. A composite blanking pulse train (positive going) made up of both blanking pulses.

Its circuitry is designed to provide as follows:—

- (a) A line sync. pulse of duration of 10 μ sec. at 5,250 p.p.s.
- (b) A line blanking pulse of duration 20 μ sec. at 5,250 p.p.s. commencing 5 μ sec. in advance of the sync. pulse.
- (c) A frequency divider chain of ratio 5,250/25, i.e. 210/1.
- (d) A frame sync. pulse of duration 1 msec. at 25 p.p.s.
- (e) A frame blanking pulse of duration 2 msec. commencing 500 μ sec. in advance of the sync. pulse, at 25 p.p.s.
- (f) A sync. mixer to combine the two blanking pulses in the same polarity, and of the same amplitude.
- (g) A blanking mixer to combine the two blanking pulses in the same polarity, and of the same amplitude.
- (h) Cathode follower output stages to feed low impedance lines to the other units.

The sync. generator is quite complex, but while it could be simplified considerably, it was found that simplification usually caused some deterioration in performance.

The simplest sync. generator would consist of two free-running time bases, at line and frame rate, feeding both flying spot scanner and receiver, but to fulfil rules 2 and 3 laid down in Part 1 of this series, this unit was developed. Those features causing complexity are the frequency divider chain, and the delay circuits, to provide a "porch" between blanking and sync. pulses. This porch is a means whereby false operation of the receiver time bases, by picture content, can be prevented.

Five types of circuit, not in common use in radio, are used, and will be described briefly first. These are:—

1. The triggered multivibrator or flip-flop.
2. The step counter.
3. Clippers, limiters, or slicers.
4. Differentiating networks.
5. Cathode followers.

Triggered Multivibrator

This consists of a multivibrator with only one coupling provided, so that it has one stable state, and one unstable. When triggered by a signal, it "flips" to the unstable state, and after a period determined by the circuit constants, it "flops" back to the normal rest state, until triggered again. Its output is a pulse, commencing at the triggering point, and of duration variable at will.

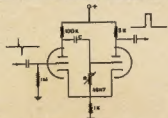


FIG. 8—FLIP-FLOP OR TRIGGER MULTIVIBRATOR

One circuit is as Fig. 8, and another in the multivibrator portion of the step counter shown in Fig. 9. The Fig. 8 circuit is used in the sync. and blanking pulse generators, and the delay flip-flops. Representative component values are shown, with R and C controlling the pulse length from a value around 1 μ sec. and longer.

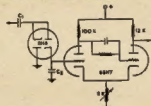


FIG. 9—STEP COUNTER

The Step Counter

The circuit shown in Fig. 9 is a step counter, for frequency division, the cathode resistance R controlling the counting rate (the number of incoming pulses accepted before the trigger multivibrator fires). It can be adjusted to count up to about 15 pulses before firing, and its output is a pulse suitable for the operation of another step counter. In the sync. generator, three counters are used—5:1, 6:1, and 7:1.

As the counting rate depends on the charge on the capacitor C2, the count will be proportional to the amplitude of the input pulses. Similarly, to control accurately the waveform and duration of all pulses, regulated high tension is essential. Positive 105 volts regulated supplies all circuits in the generator.

Clippers, Limiters or Slicers

The pulses from the multivibrators are invariably somewhat distorted from the ideal square wave form, and double slicers are used to correct their shape. See Fig. 10 (a) and (b).

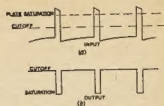


FIG. 10—EFFECT OF CLIPPING

6SH7 tubes are ideal for this purpose, their short grid base accepting only the centre portion of the pulse, as shown by the dotted lines in Fig. 10 (a). This is readily arranged by the selection of optimum grid bias, and plate and screen voltages. Low plate and screen voltages allow early plate current saturation, and a high bias normally has the tube cut off.

For positive going pulses, grid leak bias is used, keeping the tube cut off between pulses. For negative going pulses, bias is low, and plate current near saturation. The pulse drives the tube to cut off, and holds it there till the trailing edge of the pulse allows the plate current to rise to saturation again.

Differentiating Networks

To fire the flip-flops, and trigger the step counters, the leading edge of each pulse is taken as the reference point in time. Also, it is essential that the duration of the firing pulse should have no effect after the leading edge has passed. The differentiating circuit in Fig. 11 converts a substantially square pulse into positive and negative going pips of very short duration, and corresponding in time to the changes in direction, the leading and trailing edges of the pulse.

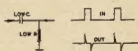


FIG. 11—DIFFERENTIATION

There is substantially no output between pips, and it is usually arranged that the positive pip fires the trigger, the negative being ignored. The CR time constant is such that it is much less than the pulse duration.

Cathode Follower

The cathode follower circuit shown in Fig. 12 consists in essentials of an amplifier with its load in the cathode circuit, instead of the plate. It has two main advantages in this work:—

1. High impedance input.
2. Low impedance output.

The input capacitance of a triode is effectively—

$$C(\text{stray}) + C_{gk} + C_{gp}(1 + A)$$

where A is the stage amplification.



FIG12-CATHODE FOLLOWER

The last term can be considerable, and its shunting effect on a high impedance input circuit carrying pulses of very short rise time can modify a pulse of the form shown in Fig. 13 (a) to that shown in Fig. 13 (b).

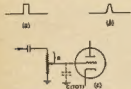


FIG13-EFFECT OF SHUNT CAPACITANCE

In the cathode follower, the input capacitance is effectively:

$$C(\text{stray}) + C(\text{in})$$

and the shunt capacitance effect is considerably reduced.

In a circuit of the form shown in Fig. 13 (c), unless a cathode follower is used to follow it, R (that part of the potentiometer in series with the grid input) and C(tot), form an integrating circuit, and can completely distort a pulse, or sawtooth of high frequency, except when the potentiometer is in the full gain position.

To feed a low impedance line, the cathode follower is invaluable, its output impedance being $1/G_m$ in parallel with the cathode resistor. By suitable choice of tube and R_k , the output impedance can be reduced to the order of 100 ohms, when the reactance of the shunt capacitances of the connecting cable and terminating circuit, are negligible. Their effect on the wave shape will then be minimised. When it is considered that the time of rise of some pulses, from zero to full value, is less than 1 usec., we must consider harmonic components up to about 10 Mc.

Shunt capacitance can so alter the shape of pulses, that their leading edge is very ill defined (note Fig. 13 (b)), and useless for accurate timing. Cathode followers are therefore used in all circuits carrying high video frequencies, or short rise time pulses, when feeding cables more than a few inches in length.

THE SYNC. GENERATOR

Fig. 14 shows a circuit of the sync. signal generator. Oscillograms of the waveforms are shown in the drawing, and are referred to in this description of circuit operation by number, e.g. (1).

An RC oscillator (6SH7) gives an approximation to a sine wave output (1) at 5,250 c.p.s., with the frequency adjustable over a narrow range, such that its 105th sub-harmonic can be synchronised with the 50 cycle mains. The out-

put is limited to an approximately square waveform (2) by a 6SH7, and differentiated (3) to give primary timing pulses of short duration. The positive going pip is used, the negative being clipped (4) by a 6SH7.

This pip fires the line blanking flip-flop (6SN7) and the delay (porch) flip-flop (6SN7) simultaneously. The blanking flip-flop is adjusted to give a positive going pulse (5) of 20 usec. duration, which is clipped (6) by a 6SH7, and fed to the blanking mixer.

The delay flip-flop is adjusted to give a positive pulse of 5 usec. duration (7) which is differentiated (8). The positive pip (coinciding with the leading edge of the blanking pulse) is clipped (9) by half a 6SN7, and the negative, 5 usec. later, is inverted (10) by the other half of the 6SN7 and used to fire the sync. multivibrator. Thus the sync. pulse commences 5 usec. after the blanking pulse.

The sync. multivibrator, a 6SN7, gives a positive pulse (11) of 10 usec. duration and this is—

- Clipped (12) by a 6SH7 and fed to the sync. mixer;
- Fed to a cathode follower-clipper, which provides positive pulses (13) for the line time base of the flying spot scanner.

The output of the RC oscillator is also fed to another limiter, a 6SJ7, whose square wave output (14) feeds the first step counter of 5:1 ratio. This counter gives an output pulse (16) for every five (15) incoming, and uses a 6H6 and 6SN7, as do the other two counters. Its output is fed to the second counter (17) (18) of 6:1 ratio, which feeds the third of 7:1 ratio (19) (20). The output of this, at 25 p.p.s., is taken from the cathode, differentiated (21) and the positive going pip fires the frame blanking multivibrator (6SN7) and frame sync. delay or porch, multivibrator, also a 6SN7, simultaneously.

The frame blanking pulse (22) is clipped by a 6SH7 (23) and fed to the blanking mixer. The pulse duration is 2 msec. In the blanking mixer (6SH7) both blanking pulses are fed in through isolating 100,000 ohm resistors to the grid and the limited output is a combined line and frame blanking waveform (24) (25). As the video mixer requires a positive going blanking input, a cathode follower serves both to retain the polarity and to provide a low impedance source for the 75 ohm line (26) (27).

The frame sync. pulse delay multivibrator, a 6SN7, gives a pulse of 500 usec. duration, negative going, at its cathode (28). After differentiation (29), its trailing edge gives a positive going pip, to fire the frame sync. multivibrator, 500 usec. after the frame blanking pulse commences. The sync. pulse has a duration of 1 msec. (30) which is—

- Clipped (31) by a 6SH7 and fed to the sync. mixer;
- Fed to a cathode follower-clipper (6J5) which provides positive pulses (32) at low impedance, for the flying spot scanner frame time base.

The sync. mixer is a 6SH7, which, similarly to the blanking mixer, provides a composite synchronising signal. It also acts as a limiter, and a negative going waveform is taken from the cathode (33) (34) for use in the video mixer, for superimposition on the blanked video waveform.

This synchronising signal generator has proved highly stable in operation, and after initial line-up, has needed little attention.

LINE-UP PROCEDURE

The method of adjustment was as follows:—

- Using an accurate audio signal generator, and a cathode ray oscillograph as display mechanism, the RC oscillator was adjusted to 5,250 c.p.s.
- With the oscillograph observing the waveforms on the trigger multivibrator grids of the step counters (15) (17) (19), each is adjusted to its correct count, by means of the multivibrator cathode potentiometers.
- The final frequency, approximately 25 p.p.s. is then compared with the mains, and the RC oscillator frequency adjusted so that an exact 25:50 c.p.s. ratio is obtained.
- The line blanking pulse waveform is displayed on the c.r.o. to show at least two pulses, and the distance between the leading edges adjusted to 4". One pulse is centred, and the pulse width adjusted to 0.4", corresponding to 20 usec. (one-tenth the line period).
- The line sync. pulse is adjusted similarly to 10 usec. duration.
- The frame sync. pulse is adjusted to 1 msec., $\frac{1}{25}$ of the frame period.
- The frame blanking pulse is adjusted to 2 msec., 5% of the frame period.
- By means of a temporary mixing circuit, similar to the blanking and sync. mixers, the line blanking and sync. pulses are superimposed. See Fig. 15 (a) (b) (c).

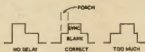


FIG15-PORCH ADJUSTMENT

The delay flip-flop pulse duration is then adjusted so that the line sync. pulse commences 5 usec. later than the blanking pulse.

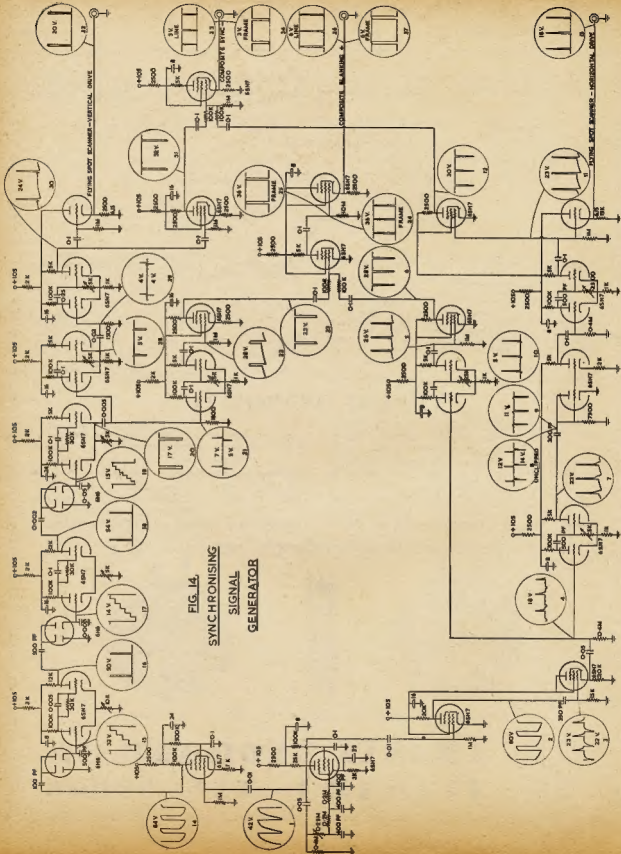
- Using the same circuit, the frame sync. and blanking pulses are superimposed, and the frame "porch" adjusted to 500 usec.

POWER SUPPLY

This provides 105 volts regulated at 75 Ma., and 6.3 volts a.c. at 12 amps. for the numerous heaters.

(To be continued)

FIG. 14
SYNCHRONISING
SIGNAL
GENERATOR



MODEL "1XA" CRYSTAL MICROPHONE INSERT



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FITTED WITH PLATED REAR SHIELD TO ELIMINATE HUM PICK-UP

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- Good high frequency response ensures excellent speech reproduction.
- Aluminium diaphragm mechanically protected and frequency controlled by "Zephyrfill" filter.
- Australian made throughout.
- Only carefully selected cements used throughout, to suit Australian climatic conditions.

TECHNICAL DETAILS

Rochelle salt crystal microphones are perhaps the most widely used for all types of service where quality speech and music reproduction at high output levels is a requirement. They are dependable in performance and when fitted with the appropriate "Zephyrfill" filter, their frequency response may be adjusted to suit any application or requirement.

This crystal microphone requires to be terminated with a high value parallel load of the order of 1 to 5 megohms for best results.

The mass of the moving parts is small, hence the sensitivity is high and a high efficiency is achieved. Light gauge solder lugs are provided so that excessive heat in soldering will not be transmitted to the crystal element.

When mounted in a microphone cage, it is recommended that the insert be suspended in rubber, to eliminate shock and vibration.

One of the connecting lugs is directly connected to the case and care should be taken to solder the metal shield of the microphone cable to this solder lug, keeping the unscreened portion of the centre conductor as short as possible to eliminate hum pick-up.

All crystal elements are mounted on high grade suspension pillars being fixed thereto with a good quality cement, thus ensuring stability and long life.

Case 1 1/2" diameter (rear), 1/2" thickness, 1-13/16" overall diameter (front) with filter fitted.

Frequency Response = 60-6,500 c.p.s.
Output Level = -45 db (0 db = 1 volt/dyne/cm²)
Impedance = Model 1XA Grid 1 — 5 megohms.



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(Continued from Page 3)

however, the gearing on the dial was such that we had about 300 degrees in which to place the scale as against the usual 180 degrees for the normal dial.

To have two lots of oscillator coils or condensers and a switching system would have been too complicated, and in addition, we didn't have the room, so we took the easy way out. By using the BC457 Unit, which originally covered 4-5.3 Mc., and connecting parallel capacity across the coil to bring it back to 3.8 Mc. with the main tuning condenser out of mesh, and then connecting additional capacities in series with this main tuning condenser to spread the calibrations out such that the 3.5 to 3.8 Mc. band covered the whole scale, the problem was beaten.

Due to the fact that we were connecting about 175 pF. as a padder in series with the tuning condenser of about 175 pF., the lower frequency end of the scale was spread considerably. We then end up with a dial in which the calibrations are deliberately made non-linear, and the maximum spread is at the low frequency end where we want it. This gives just under half of the total scale for 7 and 14 Mc.

The metal dial was removed and a piece of white celluloid marked with a pair of dividers to the same diameter as the original dial. A hole was drilled to take the centre boss and the small locating pin marked and drilled. An SBA screw was tapped into the locating pin hole so that the dial could not turn out of position. The celluloid was sanded with glass paper so that it would take ink when finally calibrated.

CHECKING CALIBRATION

(7) The system used to check the calibration of the original Unit was retained. Briefly, a small portion of the r.f. from the oscillator is fed to the grid of the electron eye tube, which has a crystal connected between grid and ground. The cathode resistor is adjusted and pre-set to give almost complete closing of the eye when the oscillator is away from the crystal frequency. At the crystal frequency the eye opens and a red line is drawn on the dial calibrations at this point.

To reset the calibrations the dial is set to the red line and the oscillator capacity adjusted through the small

covered hole in the top of the case for maximum opening of the eye.

In the original Unit the eye is viewed by means of a mirror on the hinged lid at the rear of the case. This was modified and the eye mounted to protrude through the front panel. By supplying the electron eye through the same h.t. connection as the variable oscillator, the eye only lights up when the v.f.o. is on, and therefore acts as a warning signal that the transmitter is on v.f.o. control.

Only several points in the circuit remain to be discussed. Firstly, the relay circuits. The relays are 24 volts d.c. jobs and are the type used in the original. A second one was salvaged from a wrecked unit in the junk box.

The send-receive relay is the lower one in the cathode lead to the 1625, and has two sets of contacts, the first set as mentioned previously cuts the h.t. to the oscillators and is shorted out by the netting switch, whilst the second set of contacts opens the 1625 cathode.

The Phone-C.W. relay uses only one set of contacts, which are open in the c.w. position. The cathode circuit is then closed via the key jack, and key.

Secondly, the plate condenser of the 1625 must be treated exactly like the oscillator so that they will track properly, and is therefore fitted with series condensers for this purpose.

FINAL ADJUSTMENT

The tuning dial is set to the high frequency end of the scale, condenser out of mesh, and with a receiver tuned to zero beat with a frequency meter set on 3.8 Mc., the oscillator trimmer (original condenser) is adjusted to bring the oscillator to 3.8 Mc.

With the receiver S meter and a small piece of wire on the output terminal of the Unit, the trimmer on the 1625 plate circuit is adjusted for best reading on the meter.

Next turn the v.f.o. main dial to in mesh, and set the frequency meter and receiver to 3.5 Mc. and adjust the slug on the oscillator to bring to 3.5 Mc. repeat the full process several times until the oscillator covers 3.5 to 3.8 Mc. exactly. Then with the receiver tuned to the output on 3.5 Mc., adjust the 3-30 pF. padder on the 1625 output circuit for maximum reading on the receiver S meter.

Finally check at 3.8 and 3.5 Mc. ends and touch up if necessary. At this stage check the temperature compensation as

set out previously and when you are finally satisfied, complete the dial calibrations.

The zero dial engraving was not suitable as the four bands were printed on the scale, so a small celluloid escutcheon was made up with a hair line engraved in the celluloid, so that accurate readings could be made on all bands.

One final point, the socket on the rear of the Unit was removed and a male octal plug fitted, all power connections being taken from this point.

A co-ax connector handled the r.f. output side of things.

Well that's the story, and there is no reason why you can't duplicate this Unit, and end up with a nice compact v.f.o. to sit on your operating desk, one in which the quality of components and ruggedness are far above that usually available to us and for a lot less than it costs to build too, thanks to disposals.

TECHNOGRAPH PRINTED CIRCUITS

We have received a very interesting little book giving details of the development of printed circuits. This book traces the history of the circuits to their present state of development and gives many interesting applications to which they are ideally applicable.

For instance, in transformer construction spiral coils are printed on insulating paper, which are repeated many times on strips of paper hundreds of yards long. They are then folded and stacked, the centre punched out to slip over the iron core, and each spiral end spot welded to the next. In this fashion the transformer winding is built up.

In another case, when foil is used as a conductor in high frequency circuits due to "skin" effect, very thin foil will carry astonishingly high loading. Thus in freely radiating circuits, copper foil 0.001 inch thick and with a surface width of one-eighth inch, a loading of 10 amp. or more can be carried. Therefore instruments can be reduced in weight, and there will be a large saving in metal cost.

The above examples will serve to illustrate the interesting information contained in this small book; our copy being received from R. H. Cunningham Pty. Ltd., of 118 Wattletree Road, Armadale, who can supply all information.

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894-23	500	2, 3.7, 8, 12.5	2	50-10,000	5	Line to Voice Coil	26/3
890-22	2,500, 5,000	2, 3.7, 8, 12.5, 15	1	*40-15,000	15	Single 807, EL34, etc., to V.C.	57/6
886-9	8,000, 10,000	2, 3.7, 8, 12.5, 15	1	30-15,000	15	P.P. 6V6Gs, A or AB1 to V.C.	82/6
897-9	8,000, 10,000	100, 125, 160, 250, 500	1	30-15,000	15	P.P. 6V6Gs, A or AB1 to Line	82/6
763-9	3,000, 5,000	2, 3.7, 8, 12.5, 15	1	40-20,000	15	P.P. 2A3s, A or AB1 to V.C.	42/6
809-26	500	2, 3.7, 8, 12.5, 15	1	50-20,000	15	Line to Voice Coil	42/6
870-26	10,000	2 or 8	1	*20-20,000	**6	P.P. 6V6Gs or 807s as Triodes	57/6
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891-22	6,600	85, 100, 125, 160, 250, 500	1	50-12,000	35	P.P. 807s, AB1 to Line	82/6
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★ "PHILIPS VALVE MANUAL"		8/6 " 9d.
★ "RADIO SERVICE MANUAL," Vol. 11		24/- " 1/-
★ "RADIO AMATEURS' HANDBOOK"	A.R.R.L.	44/3 " 3/-
★ "RADIO HANDBOOK"	Dawley	66/- " 2/-
★ "RADIO DATA SHEETS"	Beatty	12/6 " 1/-
★ "RADIO ANTENNA HANDBOOK"	A.R.R.L.	17/6 " 1/-

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Phone: M 1475-7

DX NOTES BY VK7RK*

By the time these notes see print winter will have passed by in favour of spring which apart from bringing the added colour of garden etc., also means a livening up of our DX bands. The higher frequencies should become progressively better and the DX Content not far away. Sufficient time has elapsed since the opening of the 81 Mc band to expect that this season will see much more activity there and who knows what the future may hold up on the band altogether. Spectra look much brighter. At the moment most bands seem to be behaving in much the way expected.

3.3c ME, possibly has not produced the results we may have hoped for although this may be mainly due to lack of reports. Believe some of the ZIs have been making quite a few European contacts but have no details. XXX has been listening here on odd occasions and hears plenty of Asians and a few South Americans, all on c.w. SARH also spends a little time between QRN bursts and logged ZKING, ZKIRM and VRCRT

7 Mo: SAHH is first off the mark with Europeans via the long path (0600x-0800x) and Central Americans at about the same time. As Hens says though, the Central Americans are

* 5 Galvin Street, Launceston, Tasmania.

illegally stamped by W. QRM. Listings are
 CTJN-J, W7VOZ, KLT-J VKRHF, VKSRM*,
 JAICR*, KZSCZ An interesting letter from
 this station of his recent workings and Laurie
 is evidently still in the area. He has
 like HP3L (phone), CO8AQ, CNA5F,
 KP4SK, KP6CC, YV3DE, VK1RA*, VK1RI*,
 and VK1RZ. He is a very good operator and
 this band and even though he had to spend
 the month away from Ham Road included
 some of his best work. He is now in
 as FR8AO, KW3BI, CO8AL, KX2NT, KZSCZ,
 KP4KD VK3YV, CO8AL, KX4BT, JA1AL,
 JA4AJ, KQ3AA, CG4AE. Europeans find
 this was in the area. The two
 are considered commonplace, but some picked
 from an imposing list include DJ4UT, DJ4NQ,
 DJ4QZ, DJ4ZL, SL4CE, UJ5AK,
 VA3KA, VQ3AN, MB8CA.

A new country for **BYT** was almost a next door neighbour in **VR2AS**. Alan's long wire knocks off the **Ws** in fine style plus **VETANU**, **KGAEF**, **WRAOS/KG6**, but two who eluded him were **KGAC**, who seem interested mainly in working **Ad**, and **VR2A**, who were mainly on the increasing slide. Europeans are best via the short path around 2100-2300z. Some of the better signals coming from **VR2** are **VR2A**, **VR2B**, **VR2C**, **VR2D**, **VR2E**, **VR2F**, **VR2G**, **VR2H**, **VR2I**, **VR2J**, **VR2K**, **VR2L**, **VR2M**, **VR2N**, **VR2O**, **VR2P**, **VR2Q**, **VR2R**, **VR2S**, **VR2T**, **VR2U**, **VR2V**, **VR2W**, **VR2X**, **VR2Y**, **VR2Z**, **VR2AA**, **VR2AB**, **VR2AC**, **VR2AD**, **VR2AE**, **VR2AF**, **VR2AG**, **VR2AH**, **VR2AI**, **VR2AJ**, **VR2AK**, **VR2AL**, **VR2AM**, **VR2AN**, **VR2AO**, **VR2AP**, **VR2AQ**, **VR2AR**, **VR2AS**, **VR2AT**, **VR2AU**, **VR2AV**, **VR2AW**, **VR2AX**, **VR2AY**, **VR2AZ**, **VR2BA**, **VR2BB**, **VR2BC**, **VR2BD**, **VR2BE**, **VR2BF**, **VR2BG**, **VR2BH**, **VR2BI**, **VR2BJ**, **VR2BK**, **VR2BL**, **VR2BM**, **VR2BN**, **VR2BO**, **VR2BP**, **VR2BQ**, **VR2BR**, **VR2BS**, **VR2BT**, **VR2BU**, **VR2BV**, **VR2BW**, **VR2BX**, **VR2BY**, **VR2BZ**, **VR2CA**, **VR2CB**, **VR2CC**, **VR2CD**, **VR2CE**, **VR2CF**, **VR2CG**, **VR2CH**, **VR2CI**, **VR2CJ**, **VR2CK**, **VR2CL**, **VR2CM**, **VR2CN**, **VR2CO**, **VR2CP**, **VR2CQ**, **VR2CR**, **VR2CS**, **VR2CT**, **VR2CU**, **VR2CV**, **VR2CW**, **VR2CX**, **VR2CY**, **VR2CZ**, **VR2DA**, **VR2DB**, **VR2DC**, **VR2DD**, **VR2DE**, **VR2DF**, **VR2DG**, **VR2DH**, **VR2DI**, **VR2DJ**, **VR2DK**, **VR2DL**, **VR2DM**, **VR2DN**, **VR2DO**, **VR2DP**, **VR2DQ**, **VR2DR**, **VR2DS**, **VR2DT**, **VR2DU**, **VR2DV**, **VR2DW**, **VR2DX**, **VR2DY**, **VR2DZ**, **VR2EA**, **VR2EB**, **VR2EC**, **VR2ED**, **VR2EE**, **VR2EF**, **VR2EG**, **VR2EH**, **VR2EI**, **VR2EJ**, **VR2EK**, **VR2EL**, **VR2EM**, **VR2EN**, **VR2EO**, **VR2EP**, **VR2EQ**, **VR2ER**, **VR2ES**, **VR2ET**, **VR2EU**, **VR2EV**, **VR2EW**, **VR2EX**, **VR2EY**, **VR2EZ**, **VR2FA**, **VR2FB**, **VR2FC**, **VR2FD**, **VR2FE**, **VR2FF**, **VR2FG**, **VR2FH**, **VR2FI**, **VR2FJ**, **VR2FK**, **VR2FL**, **VR2FM**, **VR2FN**, **VR2FO**, **VR2FP**, **VR2FQ**, **VR2FR**, **VR2FS**, **VR2FT**, **VR2FU**, **VR2FV**, **VR2FW**, **VR2FX**, **VR2FY**, **VR2FZ**, **VR2GA**, **VR2GB**, **VR2GC**, **VR2GD**, **VR2GE**, **VR2GF**, **VR2GG**, **VR2GH**, **VR2GI**, **VR2GJ**, **VR2GK**, **VR2GL**, **VR2GM**, **VR2GN**, **VR2GO**, **VR2GP**, **VR2GQ**, **VR2GR**, **VR2GS**, **VR2GT**, **VR2GU**, **VR2GV**, **VR2GW**, **VR2GX**, **VR2GY**, **VR2GZ**, **VR2HA**, **VR2HB**, **VR2HC**, **VR2HD**, **VR2HE**, **VR2HF**, **VR2HG**, **VR2HH**, **VR2HI**, **VR2HJ**, **VR2HK**, **VR2HL**, **VR2HM**, **VR2HN**, **VR2HO**, **VR2HP**, **VR2HQ**, **VR2HR**, **VR2HS**, **VR2HT**, **VR2HU**, **VR2HV**, **VR2HW**, **VR2HX**, **VR2HY**, **VR2HZ**, **VR2IA**, **VR2IB**, **VR2IC**, **VR2ID**, **VR2IE**, **VR2IF**, **VR2IG**, **VR2IH**, **VR2II**, **VR2IJ**, **VR2IK**, **VR2IL**, **VR2IM**, **VR2IN**, **VR2IO**, **VR2IP**, **VR2IQ**, **VR2IR**, **VR2IS**, **VR2IT**, **VR2IU**, **VR2IV**, **VR2IW**, **VR2IX**, **VR2IY**, **VR2IZ**, **VR2JA**, **VR2JB**, **VR2JC**, **VR2JD**, **VR2JE**, **VR2JF**, **VR2JG**, **VR2JH**, **VR2JI**, **VR2JJ**, **VR2JK**, **VR2JL**, **VR2JM**, **VR2JN**, **VR2JO**, **VR2JP**, **VR2JQ**, **VR2JR**, **VR2JS**, **VR2JT**, **VR2JU**, **VR2JV**, **VR2JW**, **VR2JX**, **VR2JY**, **VR2JZ**, **VR2KA**, **VR2KB**, **VR2KC**, **VR2KD**, **VR2KE**, **VR2KF**, **VR2KG**, **VR2KH**, **VR2KI**, **VR2KJ**, **VR2KK**, **VR2KL**, **VR2KM**, **VR2KN**, **VR2KO**, **VR2KP**, **VR2KQ**, **VR2KR**, **VR2KS**, **VR2KT**, **VR2KU**, **VR2KV**, **VR2KW**, **VR2KX**, **VR2KY**, **VR2KZ**, **VR2LA**, **VR2LB**, **VR2LC**, **VR2LD**, **VR2LE**, **VR2LF**, **VR2LG**, **VR2LH**, **VR2LI**, **VR2LJ**, **VR2LK**, **VR2LL**, **VR2LM**, **VR2LN**, **VR2LO**, **VR2LP**, **VR2LQ**, **VR2LR**, **VR2LS**, **VR2LT**, **VR2LU**, **VR2LV**, **VR2LW**, **VR2LX**, **VR2LY**, **VR2LZ**, **VR2MA**, **VR2MB**, **VR2MC**, **VR2MD**, **VR2ME**, **VR2MF**, **VR2MG**, **VR2MH**, **VR2MI**, **VR2MJ**, **VR2MK**, **VR2ML**, **VR2MN**, **VR2MO**, **VR2MP**, **VR2MQ**, **VR2MR**, **VR2MS**, **VR2MT**, **VR2MU**, **VR2MV**, **VR2MW**, **VR2MX**, **VR2MY**, **VR2MZ**, **VR2NA**, **VR2NB**, **VR2NC**, **VR2ND**, **VR2NE**, **VR2NF**, **VR2NG**, **VR2NH**, **VR2NI**, **VR2NJ**, **VR2NK**, **VR2NL**, **VR2NM**, **VR2NN**, **VR2NO**, **VR2NP**, **VR2NQ**, **VR2NR**, **VR2NS**, **VR2NT**, **VR2NU**, **VR2NV**, **VR2NW**, **VR2NX**, **VR2NY**, **VR2NZ**, **VR2OA**, **VR2OB**, **VR2OC**, **VR2OD**, **VR2OE**, **VR2OF**, **VR2OG**, **VR2OH**, **VR2OI**, **VR2OJ**, **VR2OK**, **VR2OL**, **VR2OM**, **VR2ON**, **VR2OO**, **VR2OP**, **VR2OQ**, **VR2OR**, **VR2OS**, **VR2OT**, **VR2OU**, **VR2OV**, **VR2OW**, **VR2OX**, **VR2OY**, **VR2OZ**, **VR2PA**, **VR2PB**, **VR2PC**, **VR2PD**, **VR2PE**, **VR2PF**, **VR2PG**, **VR2PH**, **VR2PI**, **VR2PJ**, **VR2PK**, **VR2PL**, **VR2PM**, **VR2PN**, **VR2PO**, **VR2PP**, **VR2PQ**, **VR2**

at Mo.: RAOU, whose activities on this band are entirely phony, is very satisfied with the new WJJK and the many of the IT W States were active during the month, gave reports in the plus region. Amongst those was a one who now promises a QSL for their first QSO three years ago when Hans was active in DL. Others of the month were VRAAE*, KXKES KXRAY, CEJCZ, CEJCC, KJLAIR, DLACR, VRBC, YVICB, TIAGQ, HRIBG, KA, KG, KR, VE and XZKX who must have been so scared of the multitude calling him he ORT.

PVT has one Ws in a queue on this band and added spice to the pot with KL7PT¹, KL7ATT¹, KL7AWB¹, KL7AVQ¹, VE9¹, OHVZ¹, K6WYD¹, K6WYF¹, K6WYU¹, K6WYV¹. In the shape of KP4AZ, K2SKO¹, FK8AE¹, VK0RM¹, KBMAY. KC9RC KL2GSH FUBAA. The latter two are also on 6300 and PARMC at 2230z. My own observations put me most interesting times around 1900z to 2000z; when on some occasions Europeans are plentiful. I have heard a few South Africans here when some good Americans are available. A few very good South African contacts were also enjoyed during this period. Listings are as follows: KL7AT¹, KL7E¹, KL7FT¹, KL7JAG¹, KL7JPB CBAH, ZK1AB FUBAA. YN1OC, ZS2BC, ZS2X, OK3VVV, DJNH, DL3QQ. I am calling VQ5C on phone but no sign here.

21 Mc. at the moment seems most suited to long ship interstate contacts such as Eastern States to VKX, but you will remember that this was very marked characteristic of 21 Mc. and we know how they behaved when the ship lengthened. Apart from some excellent VKX contacts, the only signal I heard was KGAEI on phone at 8590s in QSO with some VKs.

22 Mc. Sorry, but can't comment, am afraid I have developed a complex about this band and never really expect to hear anything which is of course not a good attitude.

Q81s still seem to be assisting the revenue of the P.M.G. and IAME finished up with a nice batch which shows FQAEZ, KASAM, FBSEB, OHKRA, YULAB for 14 Mc. operation and V80CM, V80CG, HP3FL, HH1FL, CO8AQ, PAUSPR, EASCY, W6ING/KM5, LA3C, SP3PL, PYIAHL. EAOU fills up a space on the wall with a card from VB4AE.

To talk of many things, as some be-whiskered gent has said, we comment that the active VIRM stations are AH, AC and AE. VRECN closes and shifts to VKZ. VQIRF pulls the switch to go to ZDR late in 1953. The call of PK3ZZ, who was well known in VK some few years ago is now PASRLP. GIRO, on a world tour, is operating cv on 14017 Kc, and 14040 Kc. These experts on the VIRM FR-1C, later in the year. QSL via H.S.G.E. FRITZA, who is to return to Reunion Island and get on the air again soon. Have had some comments that several G stations have recently received some Russian QSLs—not through the regular sources but through the back channels. Your deduction would be as good as mine.

The conclusion of this month's notes is also my finale as "editor" this page. As you know the notes were very capably handled by Frank QQL (ZQL) for a long time, but when he was unable to carry on during his shift to VK2, I endeavoured to fill the gap. Somewhat regret-

fully though, now I must relinquish the honor as circumstances are such that I am unable to give the job the time that is necessary to keep the news interesting. As 2QL is still uncertain about his future prospects of active operation, 3AHH has consented to carry on. Hans has been one of my most valued correspondents during the past year and is undoubtedly one of our keenest DX hunters.

To those of you who have supplied me with information during my term, I can only offer my very sincere thanks, for, without you, it would have been impossible. Please do the same for SAHH whose address is: 10 BELGRAVIA AVE., BOX HILL NORTH, E.12, VIC.

One final comment. As I have said before, to read these notes one would think that no DX was ever worked west of VK3. How about some of you VKs and VKEs dropping a line to 3AHR

STOP PRESS.—On 11/8/58 using c.w. on 7008 Kc. VK1KB QSOed CEBAA for the first contact by Amateur Radio between Australia and Easter Island. CEBAA works mainly c.w. on 7025 and 14004 Kc. but when on phone uses 7050 and 14180 Kc.

DX C.C. LISTING

PHONE

Call	No. Ctr	Call	No. Ctr
VK4RH	12 172	VK4WJ	17 123
VK2BE	2 183	VK4W	23 112
VK2EE	10 263	VK4VP	8 114
VK2F	12 156	VK4WQ	20 313
VK2G	21 156	VK4WV	12 114
VK2J	1 153	VK4WZ	34 106
VK4KS	9 153	VK4XC	28 109
VK4K	4 160	VK4XG	23 163
VK4MN	11 141	VK4XO	12 114
VK4SAW	14 160	VK4ZAH	19 102
VK4SE	7 138	VK4PJ	19 101
VK4WF	18 137	VK4IG	8 166
VK4WD	6 138	VK4J	15 114
VK4BT	23 124	VK4SL	27 100

I.W.

Cell	No. Cts.	Cell	No. Cts.
VK3BZ	6 207	VK4AP	11 133
VK4AR	6 195	VK3YL	10 135
VK4AF	6 194	VK4DZ	10 136
VK3FH	15 182	VK3ZK	3 132
VK4EL	9 172	VK3J1	20 118
VK3CZ	6 165	VK3J2	20 118
VK3ZO	2 163	VK3PL	28 117
VK3CN	1 151	VK3UM	13 116
VK3CW	1 149	VK3UJ	34 114
VK3KX	23 150	VK3U	13 113
VK3BA	28 150	VK3TL	17 113
VK3RU	10 147	VK3RC	13 107
VK3QI	36 146	VK3RO	13 107
VK3BO	23 144	VK3TC	34 103
VK3VW	4 143	VK3JAP	14 101
VK3JH	36 142	VK3JG	18 101
VK4DO	30 141	VK3OA	22 101
VK3KB	10 138	VK3RK	23 100

OPEN

Call	No. Ctr.	Call	No. Ctr.
VK3BZ	4 230	VK3VQ	46 118
VK3CER	3 230	VK3W	46 118
VK3F7	33 200	VK3JA	43 214
VK3H	12 100	VK3ADT	14 111
VK3NS	10 100	VK3K	47 111
VK3RU	6 103	VK3FP	47 111
VK3HG	10 100	VK3NM	49 111
VK3U	10 100	VK3R	47 111
VK3RW	13 371	VK3ZB	34 119
VK3D	2 170	VK3ZC	30 106
VK3CK	4 107	VK3KR	30 106
VK3KS	24 107	VK3TL	11 106
VK3DO	15 105	VK3AWN	38 106
VK3JA	40 106	VK3W	38 106
VK3LN	28 104	VK3U	27 104
VK3L	28 143	VK3P	44 104
VK3CW	40 103	VK3Q	44 104
VK3WF	40 143	VK3ZJ	17 103
VK3MC	40 130	VK3RD	30 103
VK3CP	10 107	VK3R	30 103
VK3DD	24 136	VK3DX	47 103
VK3BT	41 135	VK3VS	52 103
VK3AD	10 100	VK3V	47 103
VK3A	8 128	VK4T	30 109
VK3AH	30 125	VK4CK	54 109
VK3RW	30 125	VK4W	30 109
VK3U	33 119	VK3ACK	6 100
VK3C	60 119	VK3TG	29 100

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when it was closed down earlier, to make good use of the facility so to it shape.

The Yanks are always enthusiastic about the possibilities of 40 Mc. DX in the far month, i.e. August equinox, with possible bursts of sporadic E and I had it in mind to remind you this month of it. Clem 5GL has borne out my conviction by announcing recently that, whilst portable either side of Mount Vok, he heard 48F in conversation with another VK4, signal strength good. Maybe we will hear some 50 Mc. signals during the R.D. Contest.

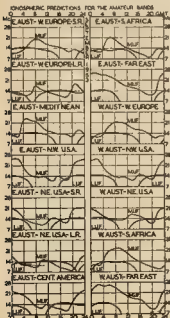
6 and 3 mhz has been pretty dead except for a sporadic activity, but 1 mhz is getting cluttered up with signals. Even Ross 3AJ, having listened and listened on 3 mhz, is about to have a nibble and Pete 5PM, established at Micham Heights, putting out to sea one eye found the Jolly Roger waving merrily in the breeze! Believe it or not, Nobby 8GV is up-bidding the v.h.f. motto and has been heard well in Pirie by the enthusiasts, but having a poor rx in Whylla couldn't hear their replies. However, John 5WJ gave his own brain child to poor Nobby—8KW and 5TL, please note! Maybe though it's a case of first come first served.

Portable activity still keeping quite a few active: Vic 5JH has built a T-x into an old gramophone case with an a.c. or d.c. vibrator supply. Quite an idea, eh? At home for the broad operation. His favourite haunt is 5ellie's Hill and all he needs is a few stalwarts at the other end of the Guild. And was it me, it has happened again—remember 5LQ at 10 mhz? Remember 5OC at Mallaia? Need I say more: 5BR, portable at 5ellie's Hill, using a J antenna resonant on 300 Mc. and used for the h.c. set as well—a man after my own heart, Sir Brian 5GH favours Mt. Omond and has worked Greenoch 50-0 hope I've that right—5PU was reported using a 5AG7 last month!!

Progress in the m.o.p.a. field comes from Hugh 5AT. In the Rx field Rob 5PU has his converted A.S.B. working well with an 8 meter and all refinements like double conversion, but there's always a nigger in the wood pile, and Bob finds that the adding of a third oscillator running in the Tx whilst trying to work duplex has the delightful habit of introducing all the h.c. stations into the mix at once. 5XX is a constant call on the band with Reg 5RR our meticulous diplomat. Secretary also regular in his habits—Sunday mornings particularly 5PD also pretty active these days.

Technical Editor is screaming for articles close, so what about the dope on some of those 84 tube jobs Keith, Col and Ray. Bob you should be good for one on the A.S.B. conversion. Hope you all appreciated the reprint on v.h.f. converters in August "A.R." There should be more of it, but we do need conversion gals fellows—5XU!

PREDICTION CHART FOR SEPT., 1953



AMATEUR CALL SIGNS

FOR THE MONTH OF JULY, 1953

ADDITIONS

- VK— New South Wales
2AQM—Dubbo Postal Amateur Radio Club, Division Headquarters, C.M.G.'s. Dept., Goughbarah Road, Dubbo.
2ATI—Newcastle Technical College (Dept. of Technical Education), Wood Street, Newcastle.
2ATJ—Newcastle Technical College Amateur Radio Club, Wood Street, Newcastle.

Victoria

- 3ADI—D. G. Turner, 3 Orion St., Nth. Balwyn.
3AGA—M. N. Russell-Carlton, 127 Manningham St., Parkville.
3ANT—N. H. Townley, 12 Harry St., Maldstone, W.19.
3AJA—R. W. Amos, 22 Harrison Ave., Burwood.

South Australia

- 5IB—G. Gillies, C/o D.C.A., Dely Waters.
5MQ—R. E. Read, C/o D.C.A., Darwin, N.T. Postal: Box 254, Darwin.
5MY—Rev. J. M. Winkler, 15 Catherine St., Clapham.
5UB—P. R. O'Connor, 1 Wilson St., N. Walkerville, Adelaide.

Territories

- 5OK—L. J. King, Norfolk Island.

ALTERATIONS

- VK— New South Wales
5BC—Flat 1, 133 Old South Head Rd., Bellevue Hill.
5WZ—13 Daisy Avenue, Penshurst.

- 22N—Ryrie Street, Braidwood.
2ABY—3 Mayfair Flats, West Esplanade, Manly.
2AKN—Urella Avenue, Belconnen.
2ATH—Postal Address: G.P.O., Box 504, Sydney

Victoria

- 3JV—21 Gother Street, Heidelberg.
3VY—323 Bay Road, Chesham.
3VY—72 Rowell Avenue, Camberwell.
3ZK—7 Mary Street, Spotswood.
3ZV—3 Moscar Street, Pascoe Vale.
3AFC—Flat No. 5, 426 Station Street, Carrum.
3ANC—Toora.
3APL—Lot 81, Beverley Grove, Mt. Waverley.
3ARS—16 Clifton Street, Claridon.
3ATD—63 Gosard Street, Bendigo.

Queensland

- 4AI—22 Muriel Street, Auburnville, Maryborough.
4LB—Callandown Street, Goodwindi.
4MU—20 North Street, West End, Townsville.
4UX—Golf Links Road, Atherton.

South Australia

- 5AL—Woronah via Tennants Creek.
5RA—8 Gilbert Street, Gilberton.

Western Australia

- 6KX—8 Emerald Terrace, West Perth.

Tasmania

- 7AX—23 High Street, Bellarine.

DELETIONS

- New South Wales: VKs 2AMC (now operating under VK6MQ), 5MF (now operating under VK6MV), 2AOC (now operating under VK6OK), 2AQA (now operating under VK6AQA).

- Victoria: VKs 5NB, 5AIG (now operating under VK5IB), 5ARG.

- South Australia: VK5XY.

- Western Australia: VKs 5GR, 6MW.

- Tasmania: VK7CM.

HINTS AND KINKS

FINGERNAIL POLISH AS A CONSTRUCTIONAL AID

There are several ways in which ordinary clear fingernail polish can be used to advantage during your next building project. It can be used to hold a nut in place on the underside of a chassis or on an interior surface of a compartment while a component, cover plate, etc., is being mounted, thus leaving both hands free for the handling of parts and tools. A few dabs of the polish will also serve as a substitute for lacing when a small within-the-chassis cable is made up and it can also be used to anchor a wire or small cable within a unit. Be sure to apply a small quantity of polish to both the insulation and the metal when one or more wires are to be bonded to the chassis—"QST."

INCREASING THE SENSITIVITY OF GRID DIP METER FREQUENCY MEASUREMENTS

When obstruction such as partitions, partial shields, etc., prevent adequate coupling between a variable tuned circuit and a grid dip meter, try the following stunt:—

First, tune the dipper to the estimated frequency of the circuit to be checked. Next, tune a receiver—with the b.f.o. turned on—to the frequency of the meter. Now, swing the tuned circuit through its tuning range. If the setting for the grid dip meter has been properly estimated, and providing that the meter is not completely shielded from the tuned circuit, the frequency of the g.d.o. will be pulled as the resonant frequency of the circuit approaches that of the meter. A change in g.d.o. fre-

quency will be indicated by a change in the receiver's beat note.

The above system permits a frequency measurement to be made even with coupling conditions which prevent any noticeable dip in g.d.o. grid current. The scheme also allows r.f. signal generators and other types of variable oscillators (as long as they are not too well shielded) to assume the frequency measuring duties of a grid dip oscillator when the latter is not available—"QST."



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FEDERAL, QSL, and DIVISIONAL NOTES

FEDERAL

Fed President: G. Glover, VK3AG.
Fed. Secretary: G. M. Hull, VK3ZS, Box 2611W, G.P.O., Melbourne.

QSL Bureau: R. E. Jones, VK3JH, 23 Landale Street, East Melbourne, Vic.
DX C.C. Manager: G. I. Morris, 60 Eighth Street, Parkdale, Vic.

NEW SOUTH WALES

President: Jim Corbin, VK3YC
Secretary: David H. Duff, VK3EO, Box 1734, G.P.O., Sydney

Meeting Night: Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney.

Divisional Sub-Editor: Harry Powell, VK3AP, 9 Russell Avenue, Wahroonga.

QSL Bureau: J. B. Corbin, VK3YC, 78 Maloney St., Eastlake, Sydney (Inwards and Outwards).
Zone Correspondents: North Coast and Tablelands: Noel Hanson, VK3AHL, Ryan Ave., West Kempsey, Newcastle. Ron McD. Stuart, VK3ARJ, 48 Dufferin, Stockton; Coffsides and Lakes: Harry Hawkins, VK3VJL, 27 Comfort Ave., Cessnock; Western: W. M. Sillit, VK3KJR, 4 Cambria, Cessnock; South Coast and South: Roy Rafter, VK3CDO, 42 Pettit St., Yass; Eastern Suburbs: Don Knocks, VK3NO, 43 Yanko Ave., Waverley; Northern Suburbs: Brian Hurrell, VK3JYJ, Russell Ave., Wahroonga; St. George: Chas. Coyle, VK3YK, 66 Carlton Cres., Kogarah Bay.

FEDERAL

RETURN OF VK3UM

Members of the W.I.A. will be pleased to learn that the immediate past Federal Secretary, Bill Mitchell, VK3UM, is due to return to the States this month after some years abroad with his duties in the Military sphere. From what has been heard of Bill since he left our shores he has not had much time to devote to his radio in the U.K. although we hope he will come back with some interesting anecdotes.

When he left the same fervent interest in the Federal Institute affairs as he had before he left Australia remains to be seen. It is hoped that he will be able to do everything he tackles would be greatly appreciated back in the ranks of Federal Executive. What about it, Bill?

DELAY IN ISSUANCE OF A.O.C.P.

EXAMINATION RESULTS

In conformity with Federal Council's directive, the Federal Executive made representation to the Department with respect to the continued complaints from A.O.C.P. candidates that on some occasions unnecessary delay occurred in advising the candidate first of all of the result of his examination, and having passed, the delay in his call sign after making application for it.

The Department explains that there is some delay in issuing the results of a December examination because, apart from the results of the examination paper, other technical licences have to be corrected at the same time, the Christmas holidays intervene.

Even so, other than the year when an A.O.C.P. examinations are held, other technical examinations are held at the same time. Current statistics show that the Department loses a considerable sum of money each year in the conduct of these examinations collectively and unless an astronomical charge was made to the candidate it would not be possible for it to be otherwise. Under such conditions a candidate's examiners have the task of correcting hundreds of papers and this takes time.

However, the Department has indicated that it will endeavour to speed up as much as possible the processing of results to A.O.C.P. candidates. In the meantime, Federal Executive asks members to assist by explaining the details of the results of the examination to those who have sat for the examination and become impatient for the result.

INTERFERENCE IN THE 7 Mc. BAND

Representations have been made to Mr. R. G. Casey, M.P. Minister for External Affairs, and Hon. J. A. Anderson, M.L.A., Postmaster General, with reference to transmitters of Radio Pakistan interfering with Amateur transmissions in that portion of the 7 Mc. band allocated by international agreement to the Amateur Service.

VICTORIA

President: G. Dennis, VK3ET.
Secretary: C. Glenn, VK3FO.

Administrative Secretary: Mrs. G. Picketing, Law Court Chambers, 191 Queen St., Melbourne.

Meeting Night: First Wednesday of each month at the Radio School, Melb. Technical College.

Divisional Sub-Editor: K. E. Pincoff, VK3JAF, 14 Duncombe Ave., Ashburton, S.E.11.

QSL Bureau: Inwards—Graham Roper, VK3ZB, 20 Lucas St., South Caulfield, Vic. Outwards—Frank O'Wier, VK3OF, 190 Thomas St., Hampton, S.T. Vic.

Zone Correspondents: Western: T. B. Rodds, VK3ATR, Box 254, Warracknabeal; South Western: W. Wines, 11 Redford St., Warrnambool; E. Giddings, VK3JAN, 8 Nelson St., Warrnambool; North Eastern: A. D. Buchanan, VK3FD, "Boorcondal", Wairling; Far North Western: M. Folke, VK3GZ, 101 Lemon Ave., Mildura; Eastern: Leo Dwyer, VK3SG, and John Battirick; North Western: C. Case, VK3ACE, Cumming Ave., Birchlip.

QUEENSLAND

President: J. A. Weddell, VK3FT.
Secretary: V. P. Green, VK3VH, Box 83W, G.P.O., Brisbane.

Meeting Night: First Friday in each month at the Geographical Society's Rooms, Ann Street, City.

Divisional Sub-Editor: J. T. Hope, VK3CL, Royal Parade, St. John's Wood, Ashgrove.

QSL Bureau: Jack Ellis, VK3AF, Vanda St., Buranda, South Brisbane (Inwards and Outwards).

SOUTH AUSTRALIA

President: W. W. Parsons, VK3PS.
Secretary: R. G. Harris, VK3NH, Box 123K, G.P.O., Adelaide. Telephone: J 1181.

Meeting Night: Second Friday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor: W. W. Parsons, VK3PS, 10 Victoria Road, Box 19, Adelaide.

QSL Bureau: Geo Luxton, VK3RX, 8 Brook St., West Mitcham, South Aus. (Inwards and Outwards).

WESTERN AUSTRALIA

President: C. A. Moss, VK3GM
Secretary: J. Mend, VK3JL, Box N108, G.P.O., Perth.

Meeting Place: Port Technical College Annex, Mounts Bay Road, Perth.

Meeting Night: Third Tuesday of the month. Divisional Sub-Editor: W. E. Coxon, VK3AG, QSL Bureau: Jim Rumble, VK6RU, Box 7318, Perth, West Aus. (Inwards and Outwards).

TASMANIA

President: L. E. Edwards, VK3LE.
Secretary: F. J. Evans, VK3TJ, Box 3718, G.P.O., Hobart.

Meeting Night: First Thursday of each month at the Photographic Society's Rooms, 163 Liverpool Street.

Divisional Sub-Editor: L. E. Edwards, VK3LE, QSL Bureau: Inwards—T. Allen, VK3AL, 100 Victoria St., Hobart. Outwards—J. A. S. S. advert, VK3RT, 318 Park St., New Town, Tas.

Zone Correspondents: Northern: M. A. Chaplin, Divisional Sub-Editor: R. W. Keay, 14, Launceston; Western: R. C. Wilson, 11 Cunningham St., Burnie, Tasmania.

Mr. Casey mentioned recently in the press that Pakistan had been granted \$300,000 worth of radio equipment under the Colombo Plan, some of which was high powered broadcast transmitters to increase the range of Radio Pakistan.

While the W.I.A. agrees that it is not possible for the Australian Administration to do much about some of the "illegal" transmissions in the bands allocated to Australia, this was a glaring example of a country who on the one hand accepted an astronomical grant of radio equipment, and on the other hand infringing the internationally agreed frequency allocation table to which it was a signatory at Atlantic City in 1947.

Both Mr. Casey and Mr. Anthony have promised to take action in this matter and in this respect certain representations have already been made. Mr. Anthony will be a little happier at least if it is possible to get rid of one "Commercial" from the bands.

with five stations in the province of Turin C.w. or phone contacts will qualify, but must not be mixed. After the initial award, further contacts of any kind are more than the recipient a sticker. Claims with cards must be made direct to the Secretary, Casella Postale 280, Torino, Italy. The card must be returned with the certificate, and the holder is permitted to use the initials DT on his cards or correspondence. With the issue of a much speedier method of achieving DT's.

Eric, BK3R189, has been performing a few weeks relief duty at Mhill. Seems to be more perturbed by the absence of a League football than the absence of home comforts.

Cards through the Federal Bureau reached an all time low during July. This is a fairly reliable reminder we can give to us in the DX bands during the previous few months.

A card which travelled Ham is Van VF3AP. According to a QSL recently received by Austin VK3YL. The card was for a contact with VQ3CM. After leaving Xanya, Van became SU4CM for six months, then spent some time as HZ1VP. His current QTH is VF3AP, Officers Mess R.A.F., Tarbaine, Aden, Southern Arabia.

FEDERAL QSL BUREAU

RAY JONES, VK3JS, MANAGER

Frank Bantley, VK3KZ, is again visiting Melbourne this year. Frank, who is bringing a party of 125 VIs to compete at the South Australian Championships, Ballarat, is scheduled to arrive on 18th October and will be located at the Victoria Coffee Palace during his week's stay in Melbourne. Apart from spending a day with VK3KZ and another with VK3KZ, he hopes to meet other old Ham friends and make new ones.

The QSL Bureau for CNE is located at the following QSLs: QSL Manager, A.A.E.M. Box 3060, Cessnabias, Morocco.

As with the unique certificate has just arrived for Bill Steyer, VK3KEZ, ex-VK3ES, earned while operating the latter call sign. It is that of the West Cliff DX Club, U.S.A., and is bestowed on stations who work 25 of the club members. Bill is proud of the title of DX Ranger as shown on the ornate certificate which the BUREAU is only the second certificate to be issued.

Still more certificates. The Turin Section of the I.R.R.I. have a diploma styled "Diploma Torino (DT)". It is available to all Amateurs who prove two way communication.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3AWK — William Loveland,
died 28/7/53.

NEW SOUTH WALES

At the time of writing these notes, the Remembrance Day trophy is still a couple of weeks off, but by the time they get out in print the trophy will have been carried off in your log as soon as possible to your Divisional Council. We need every log we can get to help the State's score along. So how about it, chaps?

While on the general strain of events and the time of the year, a timely reminder to start getting gear ready for the National Day which is to be held some time in February—March next. It takes time to get gear together for such work, so don't leave it until the last minute.

The last general meeting of the Institute resulted in a roll up of proposals from members who heard a lecture by Angus Robertson on "R.C.I. Its Causes and Cure," which was very well received. The National Day motions of which members had received notice, were put. The first, regarding the Country Group, was defeated, and the second, regarding the re-admission, and the second, was passed. The Council now has the OK to go ahead and put the necessary machinery into motion to it can legally carry out the terms of the motion. Judging by the discussion during the latter motion and the very pronounced "here-here"s" from the hall about the chosen words by Angus Robertson, it is evident members don't wish to come along to meetings to hear "here-here"s" from the hall. Radio is our hobby and it's radio we want.

Incidentally, city members or visiting country members, have you been along to a Council



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787-1	Prim.: 3200/3200 ohms, Sec.: 250/167/125/100/83 ohms	£4/10/-	
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801-9	Prim.: 10,000 ohms, Sec.: 2.3 ohms (15 watt type)	£3/-/-	
758-6	Prim.: 5000 ohms, Sec.: 600 ohms	£1/15/-	
749-6	Prim.: 20,000 ohms, Sec.: 600 ohms (voice frequency, low level type)	£1/15/-	
785-9	Prim.: 10,000 ohms, Sec.: 500 ohms (10.5 watts)	£2/-/-	
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537-8	Prim.: 20,000 ohms, Sec.: 80,000 ohms, voice freq. range, 1750-2700 c.p.s.	£1/10/-	
577-10	Prim.: 500 ohms, Sec.: 100,000 ohms, mumetal core, shunt fed, full freq. range, plus 18 vu.	£2/15/-	
528-6	Prim.: 15,000 ohms, Sec.: 135,000 ohms, single plate shunt fed to p.p. grids	£3/5/-	
519-6	Prim.: 20,000 ohms, Sec.: 80,000 ohms, p.p. triodes to single or p.p. grids	£3/5/-	
506-6	Prim.: 40,000 ohms, Sec.: 100,000 ohms, p.p. triodes to single or p.p. grids	£3/5/-	
571-9	Prim.: 5000 ohms c.t., Sec.: ratio 3:1, 2.5:1, 2.1:1, interstage driver	£2/-/-	

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held a licence for over a year now, has enough equipment to fill a three-ton truck and yet has never put out a signal. Doug SAEE has returned to the Zone and it is hoped he will continue to keep the Zone in the DX picture. Leongatha is well represented these days with Ben, Jim, Rex and Gwen keeping up the good work.

Sale Sub-Branch

The monthly meeting of the local Sub-Branch was held at the home of Doug Mackay, of Sale. Doug has a complete theatre at his home and commanded the interest of all present till quite a late hour. An inspection of Doug's equipment was the first thing undertaken, and everybody agreed that the set-up left little to be desired. Doug then presented quite a long programme of films of a very varied nature. The President, Ossie SAHK, thanked Doug for his hospitality and said that the Sub-Branch members were indeed fortunate to have such a genial host. In reply, Doug invited the boys to have another meeting at his place in the not too distant future.

The next meeting of the Sub-Branch will be held at the home of Graham SOZ. A good roll up from down Leongatha and Morwell way is expected and a good time should certainly be had by all.

CENTRAL WESTERN ZONE

Please excuse gap in Zone notes, but cropping for two months in record wet season, combined with moving to new shack, has disorganised things on the Amateur Radio side. However, with the Convention moving closer, interest in the Zone is quickening. A recent Zone hook-up attendance included SARUM, ZIB, SAFO, SAKW, SDP, ZIB, SATN. Newcomer to the Zone in the person of ZIB from Maryborough was welcomed to his first Zone hook-up. ZIB also started the Zone by breaking out with phone on the Zone hook-up. Charlie is also nearly ready to go on the high frequencies, waiting on an 8 Mc. crystal. Indeed sorry to hear that SNH is in hospital in Melbourne, hope that you are soon up and about again. Haro SAFO has erected a new 80 mc antenna which seems to be doing a good job. Main discussion was the forthcoming Convention and it was decided to hold same at Stawell on Sunday, 17th September. There will be hidden to huns and a variable is available. An invitation to all interested to attend. If accommodation is required contact T. B. Rodds, Bax

254, Warrocknabeal, as soon as possible. The gang is hoping to work it up into a good show with a few surprises, an new you from far and near at Stawell on 17th September. Listen to the 3WI broadcast for future information re this Convention.

QUEENSLAND

The attendance at the July meeting showed a slight improvement; opened at 8.15 p.m. with John 4FT in the chair and yours truly deputising for 4CB. It was good to see a few of the old faces again, amongst those we haven't seen for some time were Gordon 4GH and Henry 4HL. With a little more effort by those who have slackened, we should be soon having a good roll up to the monthly meeting. Aussie 4TN was to the fore giving all and sundry an identity instead of being just another face.

Lively discussion around a VK4 award took up quite a lot of time, and was eventually shelved for the time being owing to the difficulty in policing the award. My own observations are that it will be brought forward again in the near future.

It has been decided to go ahead with the trophy for our annual VK4 Intrastate Contest, to take the form of a shield with facilities for the yearly winners' names and call signs to be engraved. With this and other prizes, our contest should go ahead, and become very popular each year.

The QSL card position has been clarified to some extent by a compromise. That is QSLs to non-members will be forwarded, on the receipt of stamps to cover postage. Though myself, I think some charge should be made for this service. The attitude by one of our members with a bundle of cards was thought, by the meeting, to be in the poorest of spirits of Amateur Radio.

Whilst on the subject of QSL cards, I wonder how many members of the Institute in this Division honour their obligations by sending cards to those who request them. A survey of my log over the past two years shows a 35 per cent. cards received to those sent out to overseas Amateurs. This seems a poor average. Is this Division in their black books, or is the QSL card no longer the final courtesy of a QSO?

After the raffling of the call book the meeting adjourned for Vince to carry on with his pre-

vious lecture on a.s.c. By the copious notes taken by some, and the look of bewilderment on the faces of others, one got the impression it is all done with mirrors. By and large, the lecture was well received, and proved very interesting. It should win a few more converts to a.s.c. by those who like to experiment.

Thanks must go to Lee 4NV for his donation of a crystal insert for the 4WI microphone. Also to Allan 4JY for the meter that has been wanted for some time for the piece of equipment in our technical library.

Tom Alby is prepared to issue material in the form of a correspondence course to those in the country who require material in the way of A.O.C.P. study. If there is anyone desirous of taking advantage of this offer, please contact the Secretary.

Jack 4JP informs me that northern QSL cards will be, in future, distributed by Eric 4SL, excepting those who have stamp credits at the Inward Bureau, who will receive their cards by post until the credit is exhausted, then reverting to the distribution by Eric.

I thought my Ipewich spy had gone and got himself shot, but he came to light at the last moment with nothing to report. Though I do know Jack 4SF has shifted inside, to dodge the cold weather and also to re-build the shack. Any new gear going into it? Jack? Otherwise the boys up that way are still in hibernation.

Rockhampton came through here with a bit of short skip one day, and I gleaned the information that conditions have been down also. I believe Eric 4EC grabbed himself a couple of newbies on 14 Mc. during the lunch hour. 4BW, 4WT, 4SE, 4DL, and 4DO doing a little on 7 Mc. 3.5 Mc. has been workable at nights with a few good signals. 4WT being heard on Sundays at 38. 4MT and 4CL are among the few active on 50 Mc. Bill 4WD has erected himself a vertical and can be heard on 14 Mc. How do you like the change from Brisbane?

The A.O.C.P. Class is going quite well with an average of nine attending, most of the students are tackling the study well, though the varying attendance shows the class doing well to those who miss nights getting behind the lecture.

A time of writing, and to relate, Jim 4PR is in hospital dangerously ill after an accident with his motor scooter. I know this Division and his friends in other States wish him speedy recovery.

The next contest for us to worry about is the VK-ZL DX Contest. We would like to see



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The visitors' toast is always one of the most important, and this was entrusted to Skipper Schofield, 6WS. The President, when calling it, mentioned the gathering in honor of Skipper had just had his 79th birthday, and extended his and members' congratulations. VKR thus must be the oldest of the active Amateur in VK, and when we say active, it is meant to the full. Skipper is also on the Advisory Committee.

The organizing of the Dinner was in the hands of Jack 6OR, assisted by two members of each body. As on every occasion of an Institution, the President, in his capacity as guest, on him fell the job of responding on behalf of the visitors. This was a pleasing duty for Mr. Craig, in his official capacity, in contact with all those described as visitors. The Chairman of the Advisory Committee, Jack Jewell, was also active on the side as a welcome guest.

During the past year this Committee has assumed quite a different atmosphere, and with the members and chairman all out to make the best effort both on behalf of the Department and the Amateur, Amateur Radio will be the better for it.

The July meeting was mainly occupied in listening to the presentation illustrated by diagrams of the functions of D.C.A. in its control of Civil Aviation with its aids to navigation and safety measures. This was given by a pre-war member, Amateur, Val Dook, 8KB. Particularly interesting were the later systems not yet introduced into Australia. A hearty vote of thanks followed the talk.

Also on view by Mr. J. Long was a discoidal receiver ST106, in which the units, instead of being built in between the discs of a barrel tuner fitted on the outer shell, and were easily removable. It formed an excellent layout for any member who is determined to build a real Ham version of a service receiver.

The 40 metre scramble was held on Sunday, and from observations made during the morning it seems that owing to skipper's stationing, and the fact that only with a few and whilst many were on the air, signals did not provide contact. The afternoon hour period of better than 10 better than 10. In future scrambles of this nature to include the 80 mc band as well as 40 mc. The 40 mc alone is a rather poor condition. At the time of going to press the winner had not been announced. The trophy, one of the most important of the year, is the Frezzer cup.

Whilst it is true that someone on continuous watch to gather all the activities of VK6 members, one would still be cheated out of some observations brought about by day-on-leave. Aerial system for 80 mc, but apparently signals do not show such a great improvement over the use of resistance. The writer found this fundamental to be true when he put up an elaborate six-wire cage (weight nearly half a ton) to replace that of the gaffer in series with works when a rx is reconstructed to look beautiful with all the wire etc. It never works as well as it did when it occupied the whole of the shack bench.

There are two items awaiting attention on behalf of members; first is a request for a list of all members with space provided for additions and alterations, neglecting duplicated alterations, etc. in the present dated 1948. Another is to update the Handbook

for the Guidance of Operators of Experimental Wireless Stations being desirable and having legal standing.

It should be noticed that the ZLs are enjoying the band 7000 to 7200 Kc. This difference to Australian allocation makes it increasingly difficult to provide for ZL contacts.

TASMANIA

The August meeting was held at the Club Rooms on Wednesday 8th and was fairly well attended. TOM was in the chair and after the usual preliminaries, two new Associates were accepted for membership, the very Messrs. Neville Cherry and Geoff Cook. Volunteers were called for to become members of a committee to organize the Tasmanian station which will operate at the Science Exhibition in January next. Members volunteering were TRX, T.L.J. 70M, and TRX. T.L.J. was asked to help with building any equipment without actually being on the committee.

The building committee reported that the Club Room partitions will be forthcoming soon, they will be prefabricated and installed at an early date.

Highlight of the evening was the lecture which was given by Mr. G. R. Ellis, Officer in Charge of the Ionospheric Sounding Station at Hobart. Mr. Ellis told of the routine and experimental work done at the station. His talk was most absorbing and informative. One particular experiment being conducted is an attempt to trace echoes from somewhere unknown which take up to 15 seconds to return to earth. These have been observed on odd occasions since the early days of radio, but no one at that time was able to track them down although several theories have been put forward to explain them. Mr. Ellis has been doing a number of experiments with second c.w. pulse every 30 seconds with a rx, c.r.o. and camera running continuously to record any echoes being picked up. This rig could be heard on approx. 9.38 Mc., and Mr. Ellis suggested that Amateurs may assist by using the pulse and listening for any tone, say 1000 h.t.o. An article on this promised for "A.R." so watch for it if interested.

On arrival at the TAM residence the other night I found a mob taking to the streets the wicked power leak which has been blotting out the bands for some time, so we went chasing the source on the car rx and located it at a nearby house. The owner was unwilling all over the place—only comment from the owner was "you'll have to sell your receiver!" so that with a voltage and QRM things are not so hot at Bellevue.

Paid a surprise visit to the TMY ranch at Sandstone, where I found a very interesting comparing a bush pole for an aerial system for the Contest. Alan tells me he has two 75 footers cut ready in the bush waiting for the dry weather to enable erecting a very good wave eight (or was it 12) wavelengths on each leg (80 mc top). He's also preparing to get on 44 Mc. with a beam on top of nearby hill. It will be nice to hear you again Alan.

Talking of poles, TGR had pole trouble in the recent gales, hope you get it right again for the Contest. George Alex has been comparing a bush pole for an aerial system for the Contest. Alan tells me he has two 75 footers cut ready in the bush waiting for the dry weather to enable erecting a very good wave eight (or was it 12) wavelengths on each leg (80 mc top). He's also preparing to get on 44 Mc. with a beam on top of nearby hill. It will be nice to hear you again Alan.

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Welcome to VK1 Mr. R. Altwood, ex-VK1 and now TMC, and residing at Waddamana, what about turning on the tape a bit harder up there when TOM's voltages goes down? Ted TFI moving to within 100 yards of the shack and him Keith, he tells me he's going to rectify your radiations to run his rig. TRM giving a clamp tape to the station and a new wave eight his xtal filter for the Contest. TML coming on for the Contest if he can find the microphone. TRJ still adding with 100 watt rx and yet no radiations—none from TBC either—well?

NORTH WESTERN ZONE

Much building is in progress here at the moment, most Hams getting their gear ready for the B.D. Contest which will all be over by the time these notes are printed. TSF has almost completed his new 200 watt 500 kc. panel job complete with everything that opens and shuts. TAI is winding many coils for his new band-switching rig and should be ready in good job. TWA has nearly finished constructing his lower and will be shortly scraping the 30 mc. 20 mc beam with a 10 mc beam above it.

I hear that TKR has completed an electronic key to end all keys, which is capable of operating at 50 w.p.m. and incorporating new very sensitive relays. Believe TMR has just completed a new rig with a 35T in the final and a pair of 6X5s in the modulator. TMR has also put out a very nice signal. The Sunday broadcast has come through a couple of times of

late and the other day it was very strong on 40 mc which is quite unusual at the moment, guess we will hear it more often from now on.

NORTHERN ZONE

As these notes are written there is quite a bit of activity, locally, amongst participants in the B.D. Contest. V.F.O.s, antennae, etc. have been checked here for other members. There was heard trying out a new place of commercially-built equipment and having a spot of trouble with it. TRQ and T. Wiers, 72M, were having a similar piece of equipment on order—two very thoughtful Hams! TLZ's v.h.f. Ross Hull Memorial Certificate has arrived, and will soon be gracing his walls along with a few others, congrats. Col.

TFM, a newcomer to Ham Radio, is heard on 40 mc almost nightly. TFF, apparently still below the 40 mc W. coast, has a cross-town phone—most unusual for him—he is generally skeed these days. TRK was on 40 mc and on the higher bands again on c.w. At a meeting the other night we saw and heard one of TRB's efforts—a tape recorder, which gave a good account of itself. Associate with the southern gang, John Grace is at present with us for a few weeks and has been visiting a few shacks.

HAMADS

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SELL.—Type A Mk. 3 Transceiver, a.c. and vibrator, £12/10/-; MN26 Compressor Receiver, converted, with a.c. power supply and speaker, £15. M. White, P.O. Cuyen, Vic.

SELL.—100w. V.F.O. Phone Rig complete, no junk, £70; Home-brew Receiver, £10; 632 volt filtered Vibrator Packs, £2; also 100 other parts cheap. Type 3 wanted. Going VK9. Steve Grimley, 2 Hardia St., Ringwood, Vic. Phone: WU 7695.

WANTED.—"Radio Electronics" (Gernsback), Nov. 51, Dec. 51, Jan. 52, I. D. McNabb, 129 Albert Street, Windsor, Vic.

WANTED.—SCR522 complete in case, unmodified or otherwise. S. Widgery, 703 Macarthur St., Ballarat, Vic.

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359 Church St. Richmond, E.1

Editor "A.R." Dear Sir,

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There are two items awaiting attention on behalf of members; first is a request for a list of all members with space provided for additions and alterations, neglecting duplicated alterations, etc. in the present dated 1948. Another is to update the Handbook

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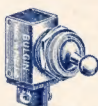
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